

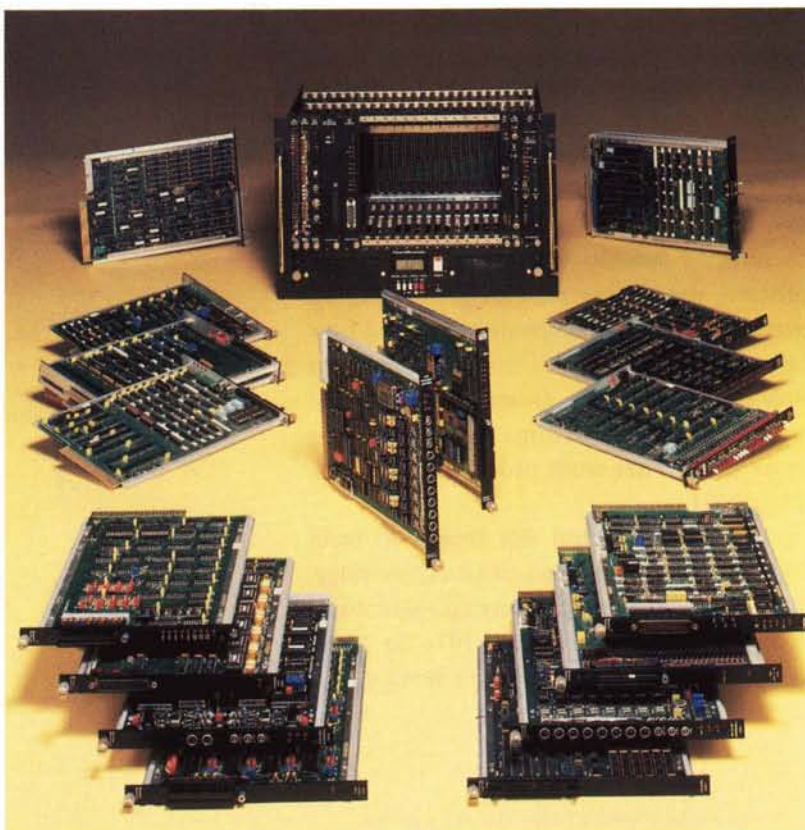
Data Acquisition Systems

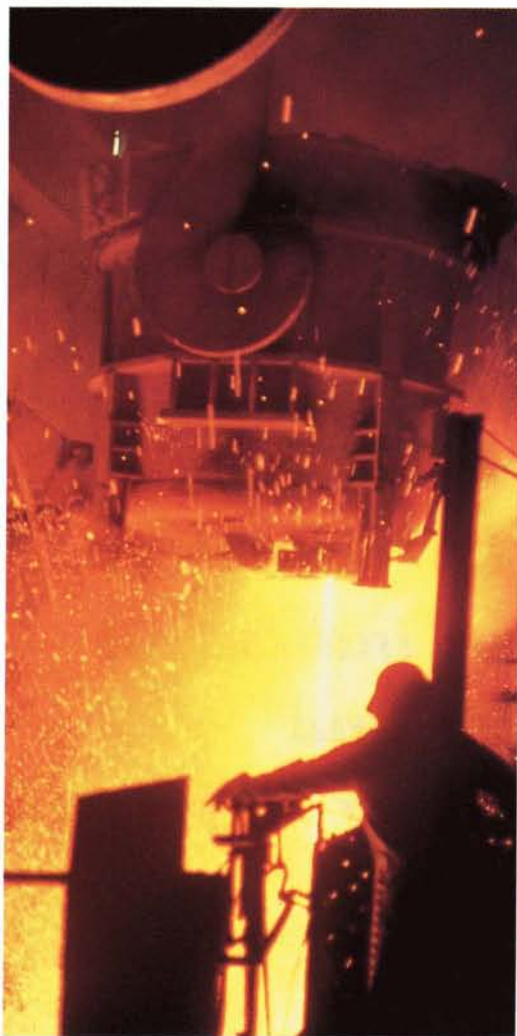
KineticSystems Corporation, Lockport, Illinois develops and produces high speed CAMAC (Computer Automated Measurement and Control) data acquisition systems for science and industry. Some of the company's most advanced products resulted from a joint study and development program with Langley Research Center in the mid-1980s. The technology developed in that effort spurred widespread spinoff applications and made KineticSystems/Langley joint recipients of a Research and Development Magazine IR-100 Award as one of the most significant advances of 1986.

The study involved feasibility determination of using CAMAC equipment to provide a distributed input/output system for Langley's Advanced Real Time Simulation (ARTS) system, which supports flight simulation R&D in such areas as automated control, navigation and guidance, air combat, and workload analysis for pilots and astronauts.

The study found CAMAC an ideal approach that would allow up to 32 high performance simulators located throughout the Langley complex to be controlled by centrally-located host computers. With Langley input, KineticSystems proceeded to develop the hardware for ARTS. Much of the CAMAC equipment was off-the-shelf, but the project demanded development of a new enhanced performance data highway and modules with higher resolution converters. KineticSystems developed a fiber optic highway that provided transmission of data between the simulators and the host computers at a rate of 24 million bits per second, allowing simulators in several locations to interact in real time. The company also developed a series of 16-bit analog to digital, digital to analog, and digital to synchro converter modules.

The technology developed in the ARTS project significantly boosted KineticSystems'





technical capability and brought a great variety of new applications in both the public and the private sectors. As cooperative marketing partners, KineticSystems and Digital Equipment Corporation, Marlborough, Massachusetts are delivering equipment derived from the ARTS work to almost 80 users in the U.S. and abroad. A typical CAMAC data acquisition system with operator interface is shown at far left; in the lower left photo is a CAMAC chassis and a sampling of the data acquisition and control modules available. The near left photo illustrates one of many applications, monitoring steelmaking operations.

The diversified range of applications includes such uses as fusion research, power grid analysis, process automation, turbine testing, petroleum distribution, chemical processing and steelmaking.

The equipment is being used in flight simulation research by Ames Research Center, Wright-Patterson Air Force Base and The Boeing Company. Major U.S. research laboratories, such as Argonne, Brookhaven, CalTech and Stanford, are using the CAMAC equipment for particle accelerator research. Princeton Plasma Physics Laboratory, Lawrence Livermore Laboratory and General Atomic are using the equipment in fusion research, as are foreign researchers in Japan and West Germany. Additionally, it is employed in high energy physics studies at Jawaharlal Nehru University in India, the CERN Research Laboratory in Switzerland, KEK National Laboratory in Japan, the University of Melbourne in Australia and KFA Laboratory in West Germany.

Among corporate users are AT&T, IBM, Standard Oil, TRW Inc., B.F. Goodrich, Hercules, Inc., Bonneville Power Authority, Corning Glass, General Electric, Koch Refining Company, Westinghouse, Whirlpool and LTV Steel.